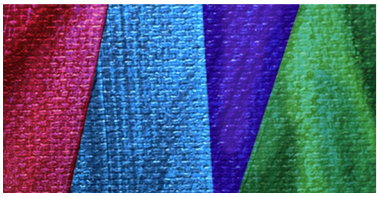
National Aeronautics and Space Administration

John F. Kennedy Space Center's New Approach for Achieving Fire Retardancy While Retaining Physical Properties in a Compatible Polymer Matrix





The National Aeronautics and Space Administration (NASA) seeks partners for advancement of a new approach for achieving fire retardancy while retaining physical properties in a compatible polymer matrix. Researchers at the John F. Kennedy Space Center (KSC) have developed processes and know-how to impart fire retardancy to common polymers such as nylons, polyesters, and acrylics. NASA's need for this invention was primarily to support the development of personnel protective systems for launch pad personnel engaged in hazardous materials (HAZMAT) operations.

BENEFITS

- Increased safety
- Enhanced flame retardancy
- Thermal stability
- Increased lifetime of material

opportunity

APPLICATIONS

- Aerospace industry (specifically fabrics and panels used in airplanes)
- Textile industry
- Protective garment industry
- Electronics industry
- Construction industry
- Wire and cabling

TECHNOLOGY STATUS

- ☐ Patent pending
- ☑ U.S. Patent No. 7,309,738
- ☐ Copyrighted
- ☑ Available to license
- ☐ Available for no-cost transfer
- ☑ Seeking industry partner for further codevelopment

Technology Details

Plastic additives comprise more than $16 billion for the global market, with flame-retardant additives making up $2.2 billion of the global market. Since polymers typically burn readily, the ability to render a polymer flame retardant without sacrificing physical properties is critical to its intended application. NASA's new fire-retardant polymers are formed using conventional polymer processing techniques to introduce a special additive at concentrations ranging from 5% to 8%. Flammability tests showed that the resulting polymer exhibited an increased limited oxygen index over unmodified polymer. The unmodified polymer burned 15 times longer than these new materials. These new materials were also found to be self-extinguishing and the thermal stability of the modified polymer was determined to be significantly higher than the virgin material using ASTM E-1612, ASTM E-698, and TA 125.

Partnership Opportunities

NASA has been issued a U.S. patent on the technology and is seeking licensees of the patent. NASA has the authority to grant licenses on its domestic and foreign patents and patent applications pursuant to 35 U.S.C. 207-209. NASA has implemented this authority by means of the NASA Patent Licensing Regulations, 37 CFR § 404. All NASA licenses are individually negotiated with the prospective licensee, and each license contains terms concerning commercialization (practical application), license duration, royalties, and periodic reporting. NASA patent licenses may be exclusive, partially exclusive, or nonexclusive. If your company is interested in the New Approach for Achieving Fire Retardancy technology or if you desire additional information, please reference Case Number KSC-12697 and contact:

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